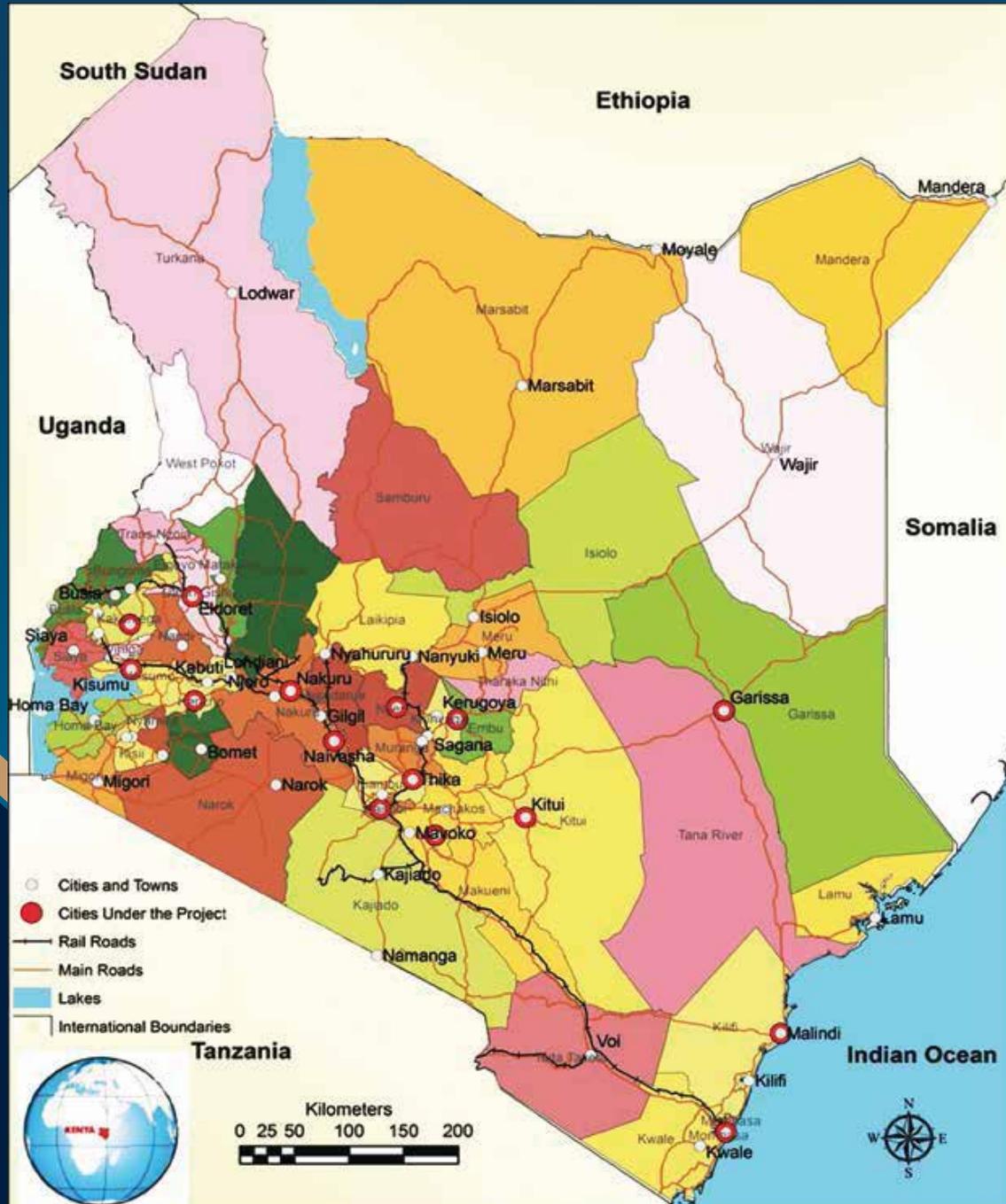


# Kenya

## STATE OF THE CITIES



# MOMBASA



# KENYA STATE OF THE CITIES BASELINE SURVEY

STATISTICAL ABSTRACT FOR MOMBASA, KENYA



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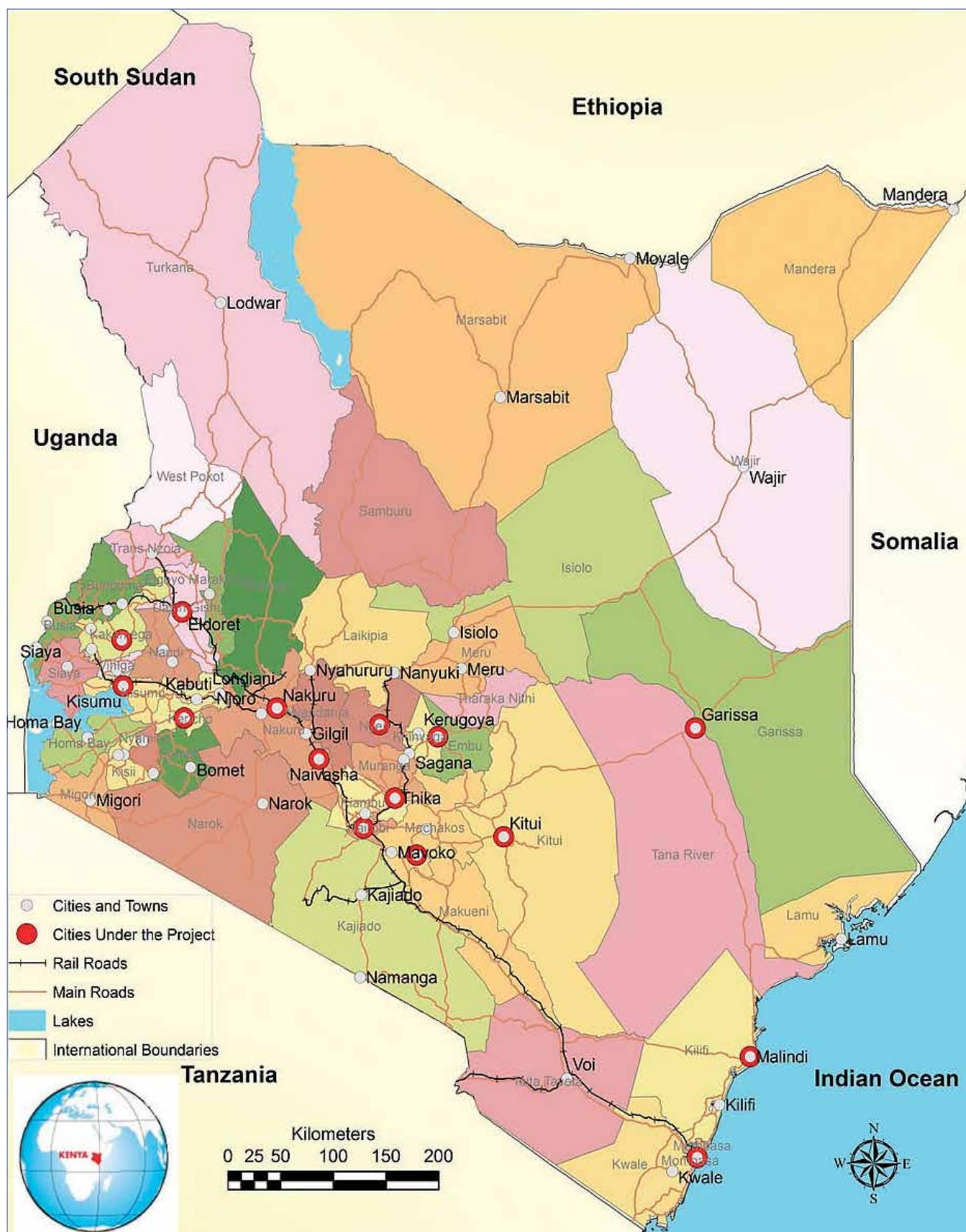
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## ABBREVIATIONS

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<b>CAPI</b>	Computer Assisted Personal Interview
<b>EA</b>	Enumeration area
<b>GOK</b>	Government of Kenya
<b>HH</b>	Household
<b>HUD</b>	U.S. Department of Housing and Urban Development
<b>KIHBS</b>	Kenya Integrated Household Budget Survey
<b>KISIP</b>	Kenya Informal Settlements Improvement Program
<b>KMP</b>	Kenya Municipal Program
<b>KNBS</b>	Kenya National Bureau of Statistics
<b>NMSP</b>	Nairobi Municipal Service Project
<b>PDA</b>	Personal Digital Assistant, in this case a hand held computer used by interviewers
<b>PSU</b>	Primary Sampling Unit
<b>SMSA</b>	Standard Metropolitan Statistical Area
<b>SRS</b>	Simple Random Sample
<b>SSU</b>	Secondary Sampling Unit
<b>WB</b>	World Bank
<b>WBG</b>	World Bank Group

# KENYA STATE OF THE CITIES BASELINE SURVEY: CITIES COVERED



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# INTRODUCTION

---

## Background

The Kenyan government, with the support of development partners, is increasing its investments in urban infrastructure and services. To support these efforts, the World Bank has contracted NORC at the University of Chicago to carry out a baseline study of the demographic, infrastructure, and economic profiles of fifteen Kenyan municipalities: Nairobi City, Mombasa, Naivasha, Nakuru, Malindi, Eldoret, Garissa, Embu, Kitui, Kericho, Thika, Kakamega, Kisumu, Machakos, and Nyeri. This was undertaken in order to deepen understanding of the cities' growth dynamics, and to identify specific challenges to quality of life for residents. The study, called the "Kenya State of the Cities Baseline Survey," collects and analyzes household survey data to produce key statistics and identify differences in conditions among types of households—especially differences between those living in informal versus formal settlements. The ultimate goal is to use the information to establish development priorities for infrastructure and service investments and, eventually, to track the effectiveness of these investments.

Prior to the State of the Cities survey, there were little data available to support the design of programs to improve infrastructure and related services in most Kenyan cities. While there have been several household surveys of Nairobi's informal settlements and numerous analyses using the data, few surveys or analyses have been carried out in other Kenyan municipalities or for modest-income areas in Nairobi.

To facilitate access to the rich datasets generated by the survey, three written products were commissioned: a Statistical Abstract (such as this one) for each city, a City-at-a-Glance for each city (a two-page summary of the Abstract), and an Overview Report (a more comprehensive discussion of the topics in this Introduction, a topic-by-topic comparative analysis of the fifteen cities, and appendices with the survey instrument). The Abstract's objective is to provide comprehensive but easily accessible information on the wide range of municipal conditions covered in the survey, as reported by households. Some information in the Abstract also comes from secondary sources, such as the national Census and the Kenya Integrated Household Budget Survey (KIHBS). The primary audience for the Abstract includes policy makers, development practitioners, development partners, civil society organizations, and urban residents. Better planning and more productive investments can result from exploiting the information in each city's Abstract.

## Methodology

For this baseline household survey, NORC used a two- and three-stage, stratified, cluster sampling design intended to be representative of poor and non-poor households living in formal and informal settlements in the fifteen cities included in the study. The first-stage sampling frame was based on Kenya's 2009 census frame of enumeration areas (EAs). In the census sample frame, EAs are identified as urban, peri-urban or rural. EAs are further identified as containing formal or informal settlement types. For the first stage sampling, NORC selected EAs from strata identified as informal (slum), urban-formal, peri-urban-formal and rural. In cases where the EAs were "large" (200 to 700 households) these EAs were divided in half, thirds, or quarters and one segment was randomly selected.

For the final stage of sampling, NORC carried out a full household listing in each selected EA (or segment, as the case may be) and randomly selected ten households for interviewing.<sup>1</sup> Because expected response rates were unknown prior to data collection, interviewers were given a target to complete at least seven interviews in each EA. In Mombasa, 157 EAs were selected in the first stage.<sup>2</sup> In the second stage, a total of 9,406 households were listed and 1,131 households were contacted for interview.

The data for this report are based on 1,095 completed interviews carried out in Mombasa from July 14, 2012 to November 12, 2012 by a team of eight interviewers and one supervisor. Among eligible households,<sup>3</sup> the completion rate was 68.87%.<sup>4</sup> Data collection took place in both formal and informal settlements simultaneously; 545 interviews were completed in informal settlements and 550 were completed in formal settlements.

## Questionnaire

The Kenya Cities Program questionnaire was developed iteratively using a base set of questions developed by the World Bank and refined to capture the key variables related to infrastructure access and municipal services of interest to the Kenyan government. The final fielded questionnaire is available in Volume II of the Overview Report. Both the household listing form and the questionnaire were programmed for use as a Computer-Assisted Personal Interview (CAPI) and both were carried out using tablet computers which transmitted data to project servers via the mobile phone network. Interviewers captured GPS coordinates during listing and again at the end of each interview.

## Data Quality

Pretesting of the questionnaire using paper-and-pencil showed an approximate administration time of 50 minutes. Recorded administration time of the CAPI instrument was considerably shorter, with a median duration of 23 minutes in Mombasa (21 minutes across all municipalities). However, duration values may have been compromised by transmission problems and supervisor reviews, which may have overwritten timestamps. Despite the uncertainty of exact durations, data quality measures do not show systematic interviewer-related errors in the final data. Approximately a third of all interviews underwent validation, including call-backs by supervisors or central office staff (in-person and by phone).

## Table Presentation

Each city's Abstract includes a set of tables designed to provide basic information on households' economic and demographic conditions, their housing conditions, and access to infrastructure and services. One challenge in preparing the Abstract was to provide a complete picture of conditions while still being selective in the information presented so as not to overwhelm the reader. A second challenge was to display the information in a way that permits stakeholders to understand conditions faced by different population groups.

<sup>1</sup> A complete description of the sampling design is found in "Kenya Municipal Program State of Cities: Overview Report," NORC, June 2013.

<sup>2</sup> 155 EAs were included in the listing activity. One EA was located in the Navy barracks, so was dropped from the study. A second EA was inhabited primarily by a minority ethnic community which refused to grant access to the EA.

<sup>3</sup> Eligible households are defined as occupied dwellings with at least one resident age 18 or older who is present during the field period.

<sup>4</sup> The completion rate is the number of households that successfully completed an interview over the total number of households assigned.

To meet these challenges we have developed a set of tables with items believed to be most important for stakeholders and have broken down the items in several ways. In addition to providing an overall picture of household (HH) characteristics, the tables illustrate whether household characteristics differ by key factors. The rows of each table generally list the household characteristics (e.g., size of household, percentage of children in school). The columns present statistics for the entire city, then show how the data differs by location (informal vs. formal areas), household poverty status (poor vs. non-poor), gender of the head of household (male vs. female headed, for informal areas only), as well as other factors pertinent to the particular table.<sup>5</sup>

From each table, one can quickly observe if there are large differences in household characteristics by location, spending power, etc., simply by comparing the cells (numbers). Each table also shows whether the observed differences are statistically significant.<sup>6</sup> “Statistically significant” means that statistical analysis has revealed that a difference, no matter how small or large, is unlikely due to chance or randomness. In practice, statistically significant differences are the ones researchers are interested in—they can be interpreted as telling us about meaningful differences in household characteristics by location, spending power, gender, or other category. When we discuss differences in the text of this report, we will refer to “statistically significant” differences unless otherwise noted.

In terms of policy decisions, whether differences matter is a combination of whether they are statistically significant *and* how large the differences are. Ultimately, it is up to the policy practitioner to decide how large a difference must be to matter in the context of interest. An important note when interpreting results is that statistical significance does not imply causality. In other words, if differences in values are statistically significant, this does not mean that one variable caused a change in the other variable. Another factor may be influencing both variables; for example, for we may find a “significant” difference between head-of-household education and household poverty, perhaps the key *common* cause is social status, which affects both their educational attainment and job/spending opportunities. Additionally, where a statistically significant difference is identified it does not imply the direction of the relationship. Perhaps the household poverty is the reason for the different education levels, or vice-versa. In this report, therefore, we will say a household characteristic is “associated with” or “correlated” with certain factors, rather than saying one is caused by another.

In order not to clutter the tables yet provide the reader with the maximum information, we mark statistically significant results in the tables with **bold** (for two adjacent values in the same row) and *italics* (to compare adjacent columns of data). Underlined values denote an insufficient number of household responses for some enumeration category of the sampling design to perform a test of statistical significance. The number of observations for a particular variable is noted in the tables in rows denoted by “N”. Cells with no observations are indicated with hyphens (-).<sup>7</sup> The table, below, summarizes the formatting used in tables throughout the Abstract: A value that is both **bold** and *italicized* indicates statistically significant differences for two adjacent cells (i.e., values in the same row) as well as for the distributions between adjacent columns. In contrast, a value in standard font—no bolding, italics, or underlining—still means that a significance test *was* performed but that the values under comparison were not statistically significantly different from each other.

<sup>5</sup> Informal/formal status was defined at the enumeration area level by the Kenya National Bureau of Statistics during the 2009 Census. Poor/non-poor is defined using the answer to a question asking respondents whether their total household expenditure in the last month was above or below a poverty line calculated using the household size (5,567 KSh for each adult 15 years and older + 3,619 KSh for each child aged 5 to 14 + 1,336 KSh for each child under 5 years old).

<sup>6</sup> Statistical significance is noted when a test achieves a *p*-value  $\leq 0.05$ .

<sup>7</sup> Regarding issues of non-response, both observational and item-specific, see Section 4, below.

There is one caveat to the formatting rules that must be addressed regarding the significance testing of distributions. While the absence of italics sometimes means that the distribution *was* tested and *was not* found to be statistically significant, this is often not the case – i.e., there are many distributions which were not tested for significance. To avoid confusion, the comprehensive list of distributions which *were* tested for significance follow.

- **Table B.2a:** Expenditure ranges by location, tenure, water connection, business, skilled/unskilled head, and gender of household head (in informal areas)
- **Table B.2b:** Income ranges by location, tenure, water connection, business, skilled/unskilled head, and gender of household head (in informal areas)
- **Table C.3:** Distribution of home value ranges and rent ranges by location, tenure, water connection, business, skilled/unskilled head, and gender of household head (in informal areas)
- **Table D.1a:** Percent of households with a piped water connection inside their dwelling by security of ownership; percent of households with a piped water connection inside their compound by security of ownership; percent of households close to piped water access by security of ownership; cost of water by security of ownership; most important water source by security of ownership; reasons for no connection by security of ownership
- **Table D1.b:** Water source by water quality; water provider by water quality; water treatment buy water quality; treatment methods by water quality.

**Table 1: Description of formats used to denote statistical significance**

Format	When we use it	Example
<b>Bold</b>	Two bolded values in the same row next to each other indicate that the difference is statistically significant.  We also use bold for ‘Yes’ or ‘No’ variables. If bold, it means that the difference between the mean of households that answered ‘yes’ (displayed) and the mean of those that answered ‘no’ (not displayed) is statistically significant. <sup>a</sup>	Table A.1 displays the mean household size for households located in formal and informal settlements; if the pair of values is bold, it means that the difference in household sizes between formal and informal areas is statistically significant.  Table B.2 displays the proportion of households which own land (or have tenure) that fall below the poverty line. If bold, it means that this proportion is statistically significantly different from the proportion of households which do not own land that fall below the poverty line.
<i>Italics</i>	We indicate statistically significant differences between columns of <i>three or more cells</i> using italics; this means the difference between the entire distributions (columns) is statistically significant. <sup>b</sup>	Table B.2, Monthly household spending power, displays the distribution of households across income and expense ranges. If values appear italicized in both columns for households located in formal and informal settlements, the difference between the two distributions is statistically significant.
<u>Underline</u>	Denotes values where, due to lack of data at the census tract (enumeration area, or EA) level, it was not statistically possible to conduct the significance test. <sup>c</sup>	Table B.3 shows the mean value of households’ primary residence with and without land, and of any other residence and/or land. An underlined value means that due to lack of data at the census tract level, it is not possible to perform a test for significant differences.
Hyphen (-)	In cases where there are no data for a cell at all, we note that with a hyphen (-).	Table B.3 shows data related to household finance. For the percentages of households according to source of financing, the cells that display a hyphen means that there were no observations for that particular variable and category.

**Notes:**

- Here a *p*-test from an Adjusted Wald test is conducted.
- Here Pearson’s Chi-squared test is conducted.
- At least two households are required to compute a household-level variance, which is required to conduct a hypothesis test. Note that this does not imply that the respective table values are based on just one household or even just one EA.

Another feature of the data worth mentioning is that outliers (responses that are very different from all the others) were not a major issue in the survey data, affecting just three variables in any important way.<sup>8</sup>

Finally, note that in tables presenting a distribution of responses, if some response categories are left out then the distribution will not add up to 100%. In cases where all response categories *are* listed then the first row of responses is given as 100. Unless otherwise noted, all figures presented in the tables are percentages.

The core of this abstract comprises a set of tables divided into chapters. Each chapter contains a textual summary of each table and highlights some of their implications. The tables are divided into four groups:

- A. Household characteristics – 3 tables
- B. Economic profile – 5 tables
- C. Tenure, tenure security, dwelling characteristics – 3 tables
- D. Infrastructure services – 4 tables

Notes to the tables are identified by small letters appearing as superscripts at the end of each table. All tables present weighted figures at the household level, unless otherwise noted, to reflect the total population of the respective table cell. The N values, however, present the *unweighted* number of households, unless otherwise noted.

The final chapter of this abstract contains a series of three “Development Polygons”. These complement the detailed tables presented in sections A through D by illustrating an “overall” sense of the state of the city. The figures included are the Development Diamond, the Infrastructure Polygon, and the Living Conditions Diamond.<sup>9</sup>

While the tables generally have a common set of column headings, there is some variation. The following are definitions for those headings that require clarification:

- *Informal/Formal Areas* – This distinguishes between areas based on whether most households in the area have property title and official services. It is a designation provided by a status code at the level of the EA (Enumeration area) as used by the National Census.
- *Gender (Informal)* – For the households living in the locations coded as “Informal,” data for household characteristics are provided for both male- and female-headed households. As is standard, the male-headed households may contain the spouse while female-headed households do not.
- *Class (of durable)* – Durable assets are a standard measure of household wealth. They are grouped into three classes, roughly based on their likely market value and degree of permanence. The actual items in each class are indicated in the table. The values reported for these categories are the number owned by the household, not their average or total value.

<sup>8</sup> Across all fifteen municipalities these were (i) home value, in which 20 responses were reported in millions units instead of as the value itself (so we simply divided these responses by a million); (ii) 40 respondents reported travel time for a weekly or monthly commute rather than a daily commute (these over-eight-hours responses were dropped); (iii) we removed one case in which the time to get water was over a week.

<sup>9</sup> The basic format for all three figures appear in the World Bank Policy Research Working Paper, “Poverty, Living Conditions, and Infrastructure Access” A Comparison of Slums in Dakar, Johannesburg, and Nairobi” by Sumila Gulyani, Debabrata Talukdar, and Darby Jack (2010). We strived to make our own figures as similar as possible, though some deviations, noted in the accompanying text, were necessary.

- *Spending Power* – The total value of household expenditures collected by the survey, excluding rent or mortgage payments.
- *Access to Infrastructure* – This indicator combines six categories of infrastructure (divided into 13 subcategories) weighted by importance to the household and summed to create a household indicator from 0 to 9.5. See NORC (August 2013), “Kenya Municipal Program State of the Cities: Overview Report” for a more detailed description.
- *Household Poverty* – The poverty line varies depending on the number of members of the household and their age. It is calculated by adding together:
  - 5,567 KSh per month for each adult 15 years and older in household,
  - 3,619 KSh per month for each child aged 5 to 14 in household,
  - 1,336 KSh per month for each child under 5 years old in household.



# HOUSEHOLD CHARACTERISTICS

This section presents basic household characteristics. Table A.1 provides information on household size and household member distribution by age category. Table A.2 details the level of education of the members of household, as well as the proportion of children and adults of different ages who were currently in school at the time of the survey. Finally, Table A.3 presents household health characteristics, including the proportion of children under 15 who have received the BCG vaccine (an immunization against tuberculosis), a major public health concern given that Kenya is a high-tuberculosis-burden country.<sup>10</sup> Table A.3 also includes the number of household members with an illness or injury in the two weeks prior to the survey, the proportion of those members who visited a health practitioner, average household medical expenditures for the month preceding the survey, and the percentage of households that have health insurance. All of these figures are given comprehensively and broken down by location type, the household's poverty status, and the gender of head of household (among informal areas).

## A.1 Household demographic composition

The 2009 census estimated that the municipality of Mombasa had a population of 938,131, a 41% increase over the figure reported in the 1999 census; this represents of a 3.5% annualized average growth rate.<sup>11</sup>

The average household size in Mombasa, as reported by survey respondents, is 2.85 members. On average, about 75% of households' members are aged 15 to 60 years old, 12% are between 5 and 14 years old, 11% are under 5, and 1% are over 60. Twenty percent of households have a female head. Households below the poverty line tend to have larger households (3.04 versus 2.59 people) and skew slightly younger. Additionally, households in informal areas with female heads tend to be much smaller (only 2.27 people on average) than male-headed households in informal areas (2.83).

<sup>10</sup> World Health Organization Global tuberculosis report 2012, retrieved June 12<sup>th</sup> 2013 from [http://www.who.int/tb/publications/global\\_report/en/](http://www.who.int/tb/publications/global_report/en/)

<sup>11</sup> From Statistical Abstract 2010 and Statistical Abstract 2006, Kenya National Bureau of Statistics.

**Table A.1: Household demographic characteristics**

Characteristic	All	Location		Household poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Number of households							
Weighted	226,633	59,334	167,299	133,821	92,006	46,052	12,362
N (unweighted)	1,093	543	550	638	451	423	110
Size of household	2.85	2.73	2.90	<b>3.04</b>	<b>2.59</b>	<b>2.83</b>	<b>2.27</b>
N	1,093	543	550	638	451	423	110
Mean percent of household members aged:							
Total	100	100	100	100	100	100	100
Under 5	11.4	11.9	11.2	<b>12.6</b>	<b>9.7</b>	11.9	11.4
5 to 14	12.3	<b>10.1</b>	<b>13.0</b>	<b>13.7</b>	<b>10.1</b>	9.9	10.6
15 to 60	75.2	77.1	74.5	<b>73.1</b>	<b>78.3</b>	77.4	76.9
Over 60	1.1	0.8	1.2	0.6	1.8	0.8	1.0
N	1,093	543	550	638	451	423	110
Proportion of households...							
Male-headed	80	79	80	79	81		
Female-headed	20	21	20	21	19		
N	1,063	533	530	620	439		
Female-headed distribution							
N		214	212				

## A.2 Household education characteristics

Mombasa was located in Coast Province, where in 2009 primary classrooms had an average class size of 40 students and secondary classrooms had on average 34 students. Student-teacher ratios in the former Coast Province were, on average, 68.2 for primary schools and 23.6 for secondary schools – these are some of the highest rates in Kenya.<sup>12</sup>

The first panel of Table A.2 presents statistics on the education of *all individuals aged 5 years and older* within the surveyed households. Forty percent of respondents have completed secondary school or higher—a figure that is likely skewed by the fact that the majority of household members are between 15 and 60 years old—and 68% completed primary or higher. Individuals from households above the poverty line are significantly more likely to have completed secondary or higher education, while those from households below the line are more likely to have only completed some or all primary school. Additionally, individuals from households in informal areas are significantly more likely to have higher education and less likely to have only completed primary school.

The second panel of the table shows the mean percent of *adult individuals over 18 years* within each household. This is done to show intra-household educational levels among households' adult members. We find that on average, 53.5% of a Mombasa household's adults have completed secondary school or higher (36.1% completed secondary, while 17.4% completed higher education). About 4.3% of the

<sup>12</sup> Provinces no longer exist in Kenya. This data is based on the Kenyan Institute for Public Policy Research and Analysis 2009 Economic Report, Table A3.16, pg. 192, per Ministry of Education statistics, [http://www.marsgroupkenya.org/pdfs/2009/10/Kenya\\_Economic\\_Report\\_2009.pdf](http://www.marsgroupkenya.org/pdfs/2009/10/Kenya_Economic_Report_2009.pdf) Section

average household's adults had no education whatsoever. We found significant differences between the distributions of adult education levels across location, poverty status, and household head gender: households in informal settlements and those below the poverty line are significantly more likely to have a lower percentage of adults with secondary and higher education, and a higher percentage of adults with primary education. Female-headed households in informal areas have on average twice as many adult members with no education than male-headed households.

Eighty-nine percent of individuals aged 5 to 14 years old are currently in school; this figure is 63% for individuals 15 to 18 and only 5% for individuals over 18. Households above the poverty line appear to be more likely to have 15-18 year old members in school, but we were unable to determine whether this difference is statistically significant.

**Table A.2: Household education characteristics**

Characteristic	All	Location		Household poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Percent of <i>individuals 5 and older</i> with highest grade completed:							
Total	100	100	100	100	100	100	100
None	4	6	4	5	4	<b>4</b>	<b>9</b>
Some Primary	28	30	27	<b>30</b>	<b>23</b>	29	33
Completed primary	19	<b>23</b>	<b>17</b>	<b>21</b>	<b>15</b>	24	20
Some secondary	9	10	9	9	9	10	10
Completed secondary	27	25	28	<b>25</b>	<b>31</b>	25	20
Higher	13	<b>8</b>	<b>15</b>	<b>10</b>	<b>19</b>	8	7
N	2,582	1,237	1,345	1577	994	999	207
Mean percent of household's <i>adults over 18</i> with highest grade completed:							
Total							
None	4.3	5.4	4.0	<b>5.3</b>	<b>3.1</b>	<b>3.7</b>	<b>10.0</b>
Some Primary	10.4	<b>13.8</b>	<b>9.2</b>	<b>12.0</b>	<b>8.1</b>	12.4	19.4
Completed primary	22.7	<b>28.0</b>	<b>20.8</b>	<b>27.0</b>	<b>16.7</b>	29.9	22.0
Some secondary	8.7	10.3	8.2	9.4	7.8	10.4	10.8
Completed secondary	36.1	31.8	37.6	<b>32.8</b>	<b>40.8</b>	32.9	27.2
Higher	17.4	<b>10.2</b>	<b>19.9</b>	<b>13.4</b>	<b>22.9</b>	10.4	9.8
N	1,093	543	550	638	451	423	110
Percent of <i>individuals</i> in school by age group:							
5 to 14	89.4	<u>91.2</u>	<u>89.0</u>	<u>89.3</u>	<u>89.5</u>	<u>92.7</u>	<u>91.1</u>
N	344	148	196	218	124	111	32
15 to 18	62.5	<u>62.1</u>	<u>62.6</u>	<u>57.2</u>	<u>74.4</u>	<u>64.4</u>	<u>55.8</u>
N	130	63	67	83	46	44	18
Over 18	4.9	5.7	4.6	4.5	5.5	5.9	5.4
N	1,089	541	548	637	449	421	110

### A.3 Household health profile

Mombasa was located in Coast Province, which in 2005 had an average of 10 doctors and clinical officers per 100,000 residents and 51 nurses per 100,000 residents.<sup>13</sup> The former Coast Province had 16 medical facilities per 100,000 residents, including hospitals, clinics, dispensaries, and other types of facilities.<sup>14</sup>

Overall, 91% of households' report their children under 15 have received BCG (tuberculosis) immunizations, and 18% had a member with an injury or illness in the two weeks prior to the interview, with little variation between groups. Seventy-four percent of these ill or injured members visited a health practitioner. Rates of health insurance coverage are quite low (only 12%), and are significantly lower among households in informal settlements and below the poverty line (7% in both cases). Strangely, male-headed households in informal settlements have significantly higher rates of illness/injury and higher medical bills than female-headed households.

**Table A.3: Household health characteristics**

Characteristic	All	Location		Household poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Percent of household's children under 15 having received BCG immunization	91	<u>88</u>	<u>91</u>	<u>91</u>	<u>89</u>	<u>88</u>	<u>87</u>
N	574	271	303	365	207	215	48
Percent of households with an injured/ill member, previous two weeks	18	17	19	17	20	<b>19</b>	<b>11</b>
N	1,093	543	550	638	451	423	110
Percent of ill household members that visit a health practitioner, previous two weeks	74	<u>76</u>	<u>74</u>	<u>70</u>	<u>79</u>	<u>75</u>	<u>83</u>
N	193	94	99	102	90	77	15
Household medical expenditures (KSh), previous month	576	330	664	230	1074	<b>387</b>	<b>111</b>
N	1,089	542	547	637	449	423	109
Percent of households with health insurance	12	<b>7</b>	<b>13</b>	<b>7</b>	<b>18</b>	7	7
N	1,092	543	549	638	451	423	110

<sup>13</sup> 2004/2005 numbers of healthcare providers obtained from Partners for Health Reformplus 2006 Report, Table A1, pg. 39, Annex A, statistics obtained from Rep. of Kenya. [www.healthsystems2020.org/files/1654\\_file\\_Tech101\\_fin.pdf](http://www.healthsystems2020.org/files/1654_file_Tech101_fin.pdf). Per capita figures calculated by dividing by 2005 (estimated) population obtained from the Kenya Integrated Household Budget Survey, Table 3.1, [http://www.knbs.or.ke/pdf/Basic%20Report%20\(Revised%20Edition\).pdf](http://www.knbs.or.ke/pdf/Basic%20Report%20(Revised%20Edition).pdf).

<sup>14</sup> Based on most current (undated) figures from Kenya Bureau of Statistics Open Kenya online database, <https://kenya.socrata.com/Health-Sector/Health-Facility-Pie-Chart/yr4-763w>. Per capita figures calculated by dividing by 2009 census population, obtained from 2010 Statistical Abstract, Kenya National Bureau of Statistics.

## HOUSEHOLD ECONOMIC PROFILE

### B.1 Household occupational composition

Table B.1 presents the current occupation, or main activity, of household members. The first panel shows the percent of all adults over 18 in each of the occupations. The five most prominent occupation categories are casual employee, regular employee, and homemaker, which together comprise about 76% of all adults in Mombasa over 18 years old. Individuals in formal areas are significantly more likely to be employed under a legal contract (“regular employee”) and are less likely to be casual employees. Those in poor households are also less likely to be regular employees, self-employed, or earn their income from investments; they are more likely to be casual employees or homemakers. Finally, there were significant differences between male and female-headed households in informal areas – female-headed households are more likely to have members that were self-employed, unpaid, or unemployed, while male-headed households are much more likely to have homemakers (26% vs. 6.3%). This may be due to the fact that male-headed households often have two adults (one male earner and one homemaker spouse), while many of the female-headed households only have one adult who must work outside the home.

The second panel shows the average percent of adults over 18 *within each household* that are occupied in each of the categories. This is done to show intra-household occupational status among households’ adult members. The results here are similar to those in the first panel above. Here we find that, on average, fully 80% of a household’s adult members are regular employees, casual employees, or homemakers. About 6% are self-employed, 3.4% are unemployed but looking for work, and 3.4% are students; no other category includes more than 2% of adult household members. Again, households in informal settlements and below the poverty line tend to have a larger proportion of casual employees and a lower proportion of regular employees, and fewer self-employed adults. We also found significant differences between male- and female-headed households in informal settlements: female-headed households were more likely to include casual workers and self-employed workers, but less likely to have adult homemakers in the household.

**Table B.1: Household members' main activity**

Occupation <sup>a</sup>	All	Location		Household poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Percent of <i>adults over 18</i> with occupation:							
Employer	0.2	0.1	0.2	0.1	0.5	0.2	0.0
Regular employee	22.9	17.4	24.7	16.8	32.2	17.0	19.4
Casual employee	28.0	34.6	25.8	34.4	18.4	35.5	33.5
Self-employed	5.8	6.9	5.4	4.0	8.6	6.0	12.0
Unpaid family worker	1.2	1.4	1.1	1.3	1.1	1.0	3.5
Apprentice	0.2	0.1	0.2	0.1	0.1	0.0	0.5
Student	4.8	4.8	4.7	4.5	5.0	4.6	6.2
Pensioner/investor	1.4	1.3	1.4	1.4	1.5	1.3	1.9
Earning from investments/ property	0.2	0.2	0.2	0.1	0.4	0.3	0.0
Sick/unable to work	0.4	0.2	0.5	0.5	0.3	0.2	0.0
Unemployed looking for work	7.6	7.1	7.8	7.8	7.4	6.2	12.2
Unemployed, not looking for work now	1.4	1.4	1.4	1.4	1.4	0.9	4.0
Homemaker	25.4	23.6	26.1	27.3	22.4	26.0	6.3
N	1,977	963	1,014	1184	786	785	157
Mean percent of household's <i>adults over 18</i> with occupation: <sup>b</sup>							
Employer	0.3	0.1	0.4	0.0	0.8	0.1	0.0
Regular employee	23.5	19.0	25.1	16.8	33.2	17.2	25.8
Casual employee	33.6	40.8	31.0	40.1	24.4	42.3	38.0
Self-employed	5.9	7.3	5.4	4.2	8.3	5.7	13.9
Unpaid family worker	1.1	0.8	1.1	1.2	1.2	0.6	1.8
Apprentice	0.1	0.1	0.1	0.1	0.0	0.0	0.0
Student	3.4	3.9	3.2	3.2	3.5	3.9	3.7
Pensioner/investor	0.9	0.9	0.9	0.9	0.9	1.0	0.7
Earning from investments/ property	0.2	0.1	0.3	0.0	0.5	0.2	0.0
Sick/unable to work	0.4	0.1	0.5	0.5	0.3	0.2	0.0
Unemployed looking for work	6.2	5.1	6.6	6.0	6.4	4.5	7.7
Unemployed, not looking for work now	1.1	0.9	1.1	1.0	1.2	0.6	2.3
Homemaker	22.6	20.0	23.5	25.5	18.4	23.0	4.9
N	1,093	543	550	638	451	423	110

**Notes:**

- a. The category "Other" has been omitted.
- b. These numbers are obtained by first computing the percentages of each household's members in each category, and then taking the mean of these percentages over all households.

## B.2 Household income/expenditure levels

There are two general approaches to measure spending power: expenditure and income, both of which are shown in the tables below. In the survey, income derives from household members' salaries, business earnings, rents, public cash support, and earnings from financial assets in the month prior to the interview, but does not include any remittances. Expenditures include all purchases, including investments for household-owned businesses. In theory, both approaches express the same amount of spending power, but typically one approach is not enough, especially when estimations are based on survey data. This is because survey respondents' perceptions about their income and expenditures can be unreliable; estimates vary depending on seasonal changes in economic activities, type of assets owned, household's cash flows, and in-kind payments.

In practice, the expenditure approach is usually more accurate because most respondents, making purchases daily, recall their expenses better. Income, on the one hand, can be problematic because it can be subject to respondent misreporting (e.g., desire to impress the enumerator) and, with non-wage income; respondents do not generally make a clear distinction between revenue (sales) and income (revenue minus expenses). Using both methods, therefore, provides an additional level of verification.

Over half (59%) of all households have monthly expenditures below the poverty line, as determined by the household composition. This proportion is about equal in both formal and informal areas, and is significantly higher among households with heads doing unskilled work. It is significantly lower (only a little above 40%) for households with water connections and which own their own business.

Income and expenditure distributions vary significantly depending on type of settlement (expenditures only), tenure status, water connection, business ownership, and whether the household head is skilled (income only). Water connection presence and whether the household owns a business are particularly strong predictors of both income and expenditure levels.

On average, households who sent money to individuals outside their household sent around 4,397 KSh in the three months prior to the interview, and those that received money received, on average, 8,231 KSh in the same period. Households were more likely to send money than to receive it, and wealthier households were much more likely to send money—70% of households in the top expenditure category sent money to friends or relatives, compared to only 22% of those in the bottom. There is less variation among the proportions of households receiving remittances (transferred income) across expenditures categories (it varies between 11 and 19%), except for the bottom income category, in which 40% of households received some money.

**Table B.2a: Monthly household spending power, as measured by expenditure**

Characteristic	All	Location		Household has...			Household head is <sup>c</sup>		Gender (Informal)		Value of transfer (row pct.) <sup>d</sup>
		Informal areas	Formal areas	Tenure <sup>a</sup>	Water connection	A business <sup>b</sup>	Skilled	Unskilled	Male-headed	Female-headed	
Percent of households below poverty line	59	62	58	51	43	42	51	65	63	57	
N	1,089	542	547	118	177	93	426	663	423	109	
Mean expenditure (monthly KSh)	16,039	12,602	17,258	25,853	28,418	21,255	18,962	13,992	12,840	11,466	
N	1,093	543	550	118	178	93	429	664	423	110	
Percent of households with expenditure <sup>d</sup>											
Less than 3,000 KSh	1	2	1	2	1	1	1	2	2	3	1,983 (22%)
3,001-6,000 KSh	11	14	10	13	2	1	7	14	13	19	2,983 (24%)
6,001-9,000 KSh	19	23	17	9	8	6	16	20	22	23	2,427 (39%)
9,001-30,000 KSh	22	26	21	12	12	16	20	24	27	22	3,140 (49%)
13,001-18,000 KSh	19	18	19	14	13	21	18	19	17	23	5,082 (58%)
18,001-30,000 KSh	19	11	22	28	32	42	24	15	12	5	4,921 (71%)
31,001-75,000 KSh	8	5	9	17	26	11	12	5	6	4	6,731 (73%)
Above 75,000 KSh	1	0	2	5	5	2	2	1	0	0	45,262 (70%)
N	1,093	543	550	118	178	93	429	664	423	110	551
Cash transfers <sup>e</sup>	4,397	<u>4,218</u>	<u>4,469</u>	<u>3,739</u>	<u>6,288</u>	<u>6,460</u>	<u>4,216</u>	<u>4,517</u>	<u>4,409</u>	<u>3,677</u>	
N	157	74	83	29	28	11	44	113	43	29	

Notes:

- Household possesses deed or other officially recognized document conferring ownership of the structure, land, or both.
- "Business" refers to a self-employed activity that may or may not entail household or wage employees.
- Includes those self-declared as "skilled" as well as "professional".
- An imputed 30-day value from responses over several periods (7 days for food, 30 days for other consumables, 12 months for durables and annual services). See Volume I in the Overview Report. No significance test performed on this column.
- Transfers are cash outflows over last three months averaged over households with such flows (equal to proportion of row households in parentheses).

**Table B.2b: Monthly household spending power, as measured by income**

Characteristic	All	Location		Household has...			Household head is <sup>c</sup>		Gender (Informal)		Value of remittance (row pct.) <sup>e</sup>
		Informal areas	Formal areas	Tenure <sup>a</sup>	Water connection	A business <sup>b</sup>	Skilled	Unskilled	Male-headed	Female-headed	
Proportion of households with income <sup>d</sup>											
Less than 3,000 KSh	2	3	1	3	0	0	0	3	3	5	3,397 (40%)
3,001-6,000 KSh	9	14	7	7	2	4	3	13	13	19	4,934 (19%)
6,001-9,000 KSh	22	26	21	23	2	8	14	28	27	24	6,982 (14%)
9,001-30,000 KSh	20	25	19	16	5	11	19	21	23	29	6,107 (16%)
13,001-18,000 KSh	18	15	19	15	16	16	21	16	16	10	10,393 (11%)
18,001-30,000 KSh	19	12	21	18	33	49	26	14	13	9	9,257 (11%)
31,001-75,000 KSh	8	5	9	9	35	12	13	5	6	4	17,708 (13%)
Above 75,000 KSh	2	0	2	7	7	0	3	1	0	1	7,218 (13%)
N	1,077	537	540	117	175	91	424	653	420	107	155
Cash remittances <sup>e</sup>	8,231	6,435	8,856	6,584	13,924	5,563	8,110	8,277	7,241	5,426	
N	157	74	83	29	28	11	44	113	43	29	

**Notes:**

- Household possesses deed or other officially recognized document conferring ownership of the structure, land, or both.
- "Business" refers to a self-employed activity that may or may not entail household or wage employees.
- Includes those self-declared as "skilled" as well as "professional".
- Total household cash income in KSh, previous month, not including in-kind income or cash assistance from/to family or friends who live outside the household. No significance test performed on this column.
- Remittances are cash inflows over last three months averaged over households with such flows (equal to proportion of row households in parentheses).

### B.3 Household wealth composition

The "household wealth index" is calculated from the household's declared ownership of a list of common household items. The value itself is created by totaling the estimated value of each item (indicated in brackets, in USD), converting to KSh, and dividing by 1,000; so the average of 26.8 means that the average household owned approximately 26,800 KSh worth of listed possessions. However, since each possible possession was only counted once, this should not be taken as a reliable estimate, but rather a unitless index of comparison.

This value is significantly higher in formal than informal areas and in non-poor households. Holdings of individual item types also vary by location and poverty line status across all item categories except farm animals (since essentially no surveyed households in Mombasa owned farm animals).

Relatively few households own homes or land or knew the value of their property, so the averages shown are drawn from a relatively small group and tests of statistical significance were not possible. For respondents that own their residence and its land, the average property is worth about 3.1 million KSh.

**Table B.3: Household wealth composition**

Characteristic	All	Location		Household poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Index of household wealth <sup>a</sup>	26.8	<b>18.8</b>	<b>29.7</b>	<b>22.5</b>	<b>32.7</b>	18.7	18.8
N	1,093	543	550	638	451	423	110
Household's average holdings of:							
Class-1 durables (furniture, pans, iron, mosquito net) [7]	5.6	<b>5.1</b>	<b>5.8</b>	<b>5.3</b>	<b>6.0</b>	5.0	5.1
Class-2 durables (stove, sewing machine, fan, wheelbarrow, water storage tank) [60]	1.2	<b>0.9</b>	<b>1.3</b>	<b>1.1</b>	<b>1.3</b>	0.9	1.0
Class-3 durables (refrigerator, washing machine, electric generator, bicycle) [100]	0.2	<b>0.1</b>	<b>0.3</b>	<b>0.2</b>	<b>0.3</b>	0.1	0.1
Farm animals (poultry and livestock) [200]	0	0.0	0.0	0.0	0.0	0.0	0.0
Entertainment equipment (radio, TV, satellite dish, DVD, video player) [80]	1.8	<b>1.4</b>	<b>2</b>	<b>1.6</b>	<b>2.1</b>	1.4	1.3
Motorized transport (motorcycle [400], car [1,000])	0.0	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.1</b>	0.0	0.0
N	1,093	543	550	638	451	423	110
Value of primary residence, not its land (in 1,000 KSh) <sup>b</sup>	3,298	<u>111</u>	<u>3,515</u>	<u>1,096</u>	<u>7,521</u>	<u>170</u>	<u>170</u>
N	9	2	7	6	3	1	1
Value of primary residence and its land (in 1,000 KSh) <sup>b</sup>	3,144	<u>2,410</u>	<u>3,485</u>	<u>2,410</u>	<u>3,485</u>	<u>1,272</u>	<u>1,078</u>
N	61	26	35	22	39	22	3
Value of other land and/or residence (in 1,000 KSh) <sup>c</sup>	2,102	<u>840</u>	<u>2,161</u>	-	<u>2,102</u>	<u>840</u>	-
N	9	1	8	0	9	1	0

**Notes:**

- This is a class-weighted average of the number of items as disaggregated in this same table, multiplied by the weight given within the square brackets [].*
- About 97% of the sample had missing values for this amount, though at about the same frequency across the categories of this table. About half the sample that declared owning land or a residence failed to report its value. Averages are only over households with the asset. See "Proportion of Owners" in Table C.1. Note that values in the last three rows of the table are divided by one thousand.*
- Since the survey does not ask the value of these, they have been imputed as a percent of primary residence value where it was declared (see Footnote (c)). These imputations are: land in city (10%), land outside city (5%), residence only in city (40%), and residence only outside of city (28%). If household has both land and structure these are scored separately and added together. In the case where the land of primary residence is not owned the value of the residence is first doubled before the imputations are made.*

## B.4 Household finance

Sixty-five percent of all households in Mombasa have a bank account, a number that differs significantly by location and poverty status – non-poor households and those in formal settlements are much more likely to have one (78% and 70%). Very few households have a loan from any source – less than 5% for all sources except relatives and friends – and poor households are much more likely than non-poor to have a loan from this source. While only 17% of households receive remittances, a much larger proportion (53%) send money to those outside the residence; non-poor households are particularly likely (64%) to send money.

**Table B.4: Household finance**

Characteristic	All	Location		HH poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Percent of households with a bank account	65	<b>51</b>	<b>70</b>	<b>56</b>	<b>78</b>	51	50
N	1,091	542	549	637	450	422	110
Percent of households with a loan	12	<b>7</b>	<b>13</b>	12	10	<b>8</b>	<b>3</b>
N	1,091	542	549	637	450	422	110
Percent of households with a loan from a...							
Bank	3	1	3	2	4	<b>1</b>	<b>3</b>
Microfinance institution	1	1	1	1	0	1	1
Savings/credit group or co-op	2	1	2	1	3	1	0
Relative/friend	7	4	8	<b>10</b>	<b>3</b>	5	3
Informal lender	0	0	0	0	1	0	0
N	1,093	543	550	638	451	423	110
Percent of households receiving cash from those not now living at residence <sup>a</sup>	17	16	17	19	14	<b>13</b>	<b>29</b>
N	1,093	543	550	638	451	423	110
Percent of HHs sending cash to those not now living at residence <sup>a</sup>	53	51	54	<b>45</b>	<b>64</b>	53	45
N	1,093	543	550	638	451	423	110

Notes

Over the previous twelve months.

## B.5 Household-owned business profile

Only 8% of households own a business, most of which (65%) engage in some form of selling. These businesses tend to be fairly new and quite small, as the average age for a business is less than a year and the average number of employees is between one and two—in fact, the business owner is the sole employee in many cases. Nearly all businesses are registered either with a local authority (53%) or not at all (40%), and 27% of businesses do not pay fees or taxes. The average revenue of businesses is slightly under 24,000 KSh in the month preceding the interview. The relatively low number of businesses means that it is not possible to perform tests of statistical significance for most of Table B.5.

**Table B.5: Household-owned business profile**

Characteristic	All	Location		HH poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Percent of household with business ownership, last 12 months	8	9	8	6	12	8	12
N	1,093	543	550	638	451	423	110
Type of business: <sup>a</sup>							
Manufacturing	4	<u>6</u>	<u>3</u>	<u>2</u>	<u>5</u>	<u>8</u>	<u>0</u>
Selling	65	<u>79</u>	<u>59</u>	<u>87</u>	<u>49</u>	<u>72</u>	<u>100</u>
Transport	12	<u>5</u>	<u>15</u>	<u>2</u>	<u>19</u>	<u>7</u>	<u>0</u>
Professional (including Internet)	0	<u>2</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>2</u>	<u>0</u>
Other (barber, cleaning, etc.)	19	<u>8</u>	<u>23</u>	<u>9</u>	<u>26</u>	<u>11</u>	<u>0</u>
N	93	53	40	44	49	38	15
Years in operation	0.8	<u>1.1</u>	<u>0.7</u>	<u>0.8</u>	<u>0.8</u>	<u>1</u>	<u>1.2</u>
N	93	<u>53</u>	<u>40</u>	<u>44</u>	<u>49</u>	<u>38</u>	<u>15</u>
Number of employees	1.4	<u>1.4</u>	<u>1.4</u>	<u>1.4</u>	<u>1.4</u>	<u>1.5</u>	<u>1</u>
N	93	53	40	44	49	38	15
Which are...							
Household members	1.1	<u>1.1</u>	<u>1.2</u>	<u>1.2</u>	<u>1.1</u>	<u>1.2</u>	<u>0.9</u>
N	93	53	40	44	49	38	15
Non-household members	0.3	<u>0.3</u>	<u>0.3</u>	<u>0.3</u>	<u>0.3</u>	<u>0.4</u>	<u>0.1</u>
N	93	53	40	44	49	38	15
Revenue in previous month <sup>b</sup>	23,826	<u>10,253</u>	<u>28,882</u>	<u>9,325</u>	<u>33,586</u>	<u>10,965</u>	<u>8,367</u>
N	79	44	35	36	43	31	13
Registration status:							
Local authority (municipal or city council)	53	<u>48</u>	<u>55</u>	<u>44</u>	<u>59</u>	<u>57</u>	<u>25</u>
Kenya Revenue Authority	15	<u>3</u>	<u>19</u>	<u>4</u>	<u>22</u>	<u>4</u>	<u>0</u>
Registrar of Companies	1	<u>2</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>2</u>	<u>0</u>
None of the above	40	<u>49</u>	<u>37</u>	<u>54</u>	<u>30</u>	<u>39</u>	<u>75</u>
N	93	53	40	44	49	38	15
Share of businesses making fiscal contributions:							
Daily market local fee	24	<u>29</u>	<u>23</u>	<u>27</u>	<u>23</u>	<u>30</u>	<u>24</u>
Single business permit local fee	32	<u>26</u>	<u>34</u>	<u>22</u>	<u>38</u>	<u>34</u>	<u>6</u>
Value Added Tax	17	<u>1</u>	<u>23</u>	<u>11</u>	<u>22</u>	<u>2</u>	<u>0</u>
N	93	53	40	44	49	38	15

**Notes:**

- a. Households were allowed to choose more than one category so these figures may exceed 100%.
- b. Average over only those businesses operating over the period.

## DWELLING TENURE, SECURITY, AND CHARACTERISTICS

### C.1 Household dwelling characteristics

On average, households in Mombasa have 2.1 people per room, a ratio that is higher in poor households and those in informal areas with male heads. Households have slightly less than one bathroom on average. Twenty-one percent of households have a kitchen. This proportion is almost twice as high in formal settlements (24%) as in informal (13%) and more than twice as high in non-poor households (32%) as poor ones (14). Both are significant differences.

Most households in Mombasa cook with kerosene, gas, or charcoal. Households in informal areas are significantly less likely to use gas and more likely to use firewood than households in formal areas. Compared to non-poor households, poor households use gas less frequently, but charcoal and firewood more frequently. In informal areas, male-headed households use kerosene more often than female-headed households, while female-headed households use gas more often than male-headed households.

Most households are renters (87%), with only a small percentage (13%) owning their land or structure. Interestingly, there are no significant variations in housing tenure between poor and non-poor households, or those in formal versus informal settlements.

People in Mombasa report that they are extremely susceptible to natural and manmade hazards. Practically all households (88%) report that the area around their dwelling floods during heavy rains, 55% encounter mudslides, 56% say they live within a ten-minute walk of a formal or informal garbage dump, and 14% state that they are exposed to factory pollution in their neighborhood. These hazards affect both poor and non-poor households, as well as those in formal as well as informal areas, although poor households are more likely to live in mudslide zones and informal settlements tend to be closer to garbage dumps.

Quality of housing varies widely across location. While only 6% of households have an earth or clay floor, 16% of households in informal areas do, as well as 9% of poor households—significant differences compared to formal areas and non-poor households. Most households (86%) have an iron or grass roof and stone or brick walls (88%), although again this percentage is significantly lower (for stone walls) and higher (for iron/grass roofs) among poor and informal-area households.

**Table C.1: Household dwelling characteristics**

Characteristic	All	Location		Household poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Number of persons per room	2.1	2.2	2.1	<b>2.4</b>	<b>1.8</b>	<b>2.2</b>	<b>1.9</b>
N	1,092	542	550	638	450	422	110
Number of bathrooms	0.9	<b>0.7</b>	<b>0.9</b>	0.8	1	0.7	0.7
N	1,093	543	550	638	451	423	110
Proportion of residences with kitchen	21	<b>13</b>	<b>24</b>	<b>14</b>	<b>32</b>	12	17
N	1,093	543	550	638	451	423	110
Primary cooking fuel:							
Electricity	2	1	2	1	2	1	1
Paraffin or kerosene	39	45	37	42	36	<b>48</b>	<b>31</b>
Gas	21	<b>12</b>	<b>24</b>	<b>14</b>	<b>31</b>	<b>10</b>	<b>18</b>
Charcoal	37	40	36	<b>41</b>	<b>30</b>	38	47
Firewood	1	<b>3</b>	<b>1</b>	<b>2</b>	<b>0</b>	3	3
N	1,078	535	543	630	444	415	110
Proportion of households that:							
Total	100	100	100	100	100	100	100
Owns the land only	0	0	0	0	0	0	1
Owns structure only	3	2	4	3	2	<b>1</b>	<b>4</b>
Owns land and structure	10	9	10	9	12	10	6
Rents	87	89	86	88	85	89	89
Squats	0	0	0	0	1	0	0
N	1,093	543	550	638	451	423	110
Pct. of HHs in areas subject to <sup>l)</sup>							
Flooding <sup>b</sup>	88	92	86	90	86	91	94
Mudslides <sup>c</sup>	55	60	53	<b>60</b>	<b>48</b>	61	61
10 minute walk to formal or informal garbage dump	56	66	53	55	58	66	63
Factory pollution (air, water, noise)	14	15	14	14	16	15	17
N	1,093	543	550	638	451	423	110
Housing quality:							
Pct. with earth/clay floor	6	<b>16</b>	<b>3</b>	<b>9</b>	<b>2</b>	14	22
Percent with corrugated iron roof	86	<b>92</b>	<b>84</b>	<b>89</b>	<b>82</b>	93	89
Percent with grass roof	0	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Percent with stone/brick/block walls	88	<b>74</b>	<b>93</b>	<b>85</b>	<b>94</b>	74	73
N	1,093	543	550	638	451	423	110

## C.2 Home and land ownership

Eighty-two percent of households that own land or property feel that their tenure is secure. This percentage is much lower for households in informal areas (62%), but we were not able to determine if this difference is statistically significant. Practically no households in Mombasa have experienced eviction.

Most owners have a freehold title to their property (57%), a letter from the chief or provincial administration (14%), or no title at all (19%). While poor and informal-area households seem to be more likely to have no title, there were not enough owners to establish significance.

Households have been in their present dwelling for an average of 4.7 years before the date of interview, and in their present neighborhood for slightly longer (5.6 years). These averages are essentially the same across all categories.

**Table C.2: Household residence and land tenure**

Characteristic	All	Location		Household poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Percent of households that:							
Total	100	100	100	100	100	100	100
Own the land only	0	0	0	0	0	0	1
Own structure only	3	2	4	3	2	1	4
Own land and structure	10	9	10	9	12	10	6
Rent	87	89	86	88	85	89	89
Squat	0	0	0	0	1	0	0
N	1,093	543	550	638	451	423	110
Percent of households that feel secure in ownership	82	<u>62</u>	<u>88</u>	<u>79</u>	<u>85</u>	<u>63</u>	<u>49</u>
N	118	59	59	64	54	47	10
Variability of households feeling secure <sup>a</sup>	0.002	0.011	0	0	0.017	0.001	0
N	118	59	59	64	54	47	10
Percent of households that experienced eviction	0	1	0	0	0	1	1
N	1,093	543	550	638	451	423	110
Proportion of household owners by type of land-possession document:							
Total	100	100	100	100	100	100	100
None	19	<u>33</u>	<u>15</u>	<u>28</u>	<u>9</u>	<u>32</u>	<u>36</u>
Freehold title	57	<u>48</u>	<u>60</u>	<u>47</u>	<u>70</u>	<u>49</u>	<u>46</u>
Temporary occupation license	2	<u>4</u>	<u>2</u>	<u>1</u>	<u>4</u>	<u>5</u>	<u>0</u>
Share certificate	3	<u>5</u>	<u>2</u>	<u>3</u>	<u>3</u>	<u>5</u>	<u>6</u>
Government certificate of title <sup>b</sup>	3	<u>2</u>	<u>3</u>	<u>1</u>	<u>4</u>	<u>0</u>	<u>12</u>
Letter from chief (provincial administration)	14	<u>5</u>	<u>17</u>	<u>16</u>	<u>11</u>	<u>6</u>	<u>0</u>
Other	2	<u>3</u>	<u>2</u>	<u>4</u>	<u>0</u>	<u>4</u>	<u>0</u>
N	138	68	70	81	57	53	14

Characteristic	All	Location		Household poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
<b>Neighborhood mobility</b>							
Years in dwelling	4.7	5.0	4.6	4.6	4.8	4.6	4.9
N	1,092	543	549	638	450	559	423
Years in neighborhood	5.6	5.7	5.6	5.8	5.3	5.6	5.7
N	1,091	543	548	638	450	423	110
Home loan payment as a percent of spending power <sup>c</sup>	74	<u>63</u>	<u>77</u>	<u>42</u>	<u>83</u>	<u>54</u>	<u>82</u>
N	8	3	5	2	6	2	1

Notes:

- All data is self-reported, and therefore subjective.
- Households reported that the area floods during heavy rains.
- Households reported that they are located on a hillside that is subject to mudslides.

### C.3 Distribution of housing values and rents

Home values tend to be high in Mombasa; the largest two home value categories (over 1 million KSh) contain 73% of households, and the average value is about 3.2 million. Rents average around 2,800 KSh per month. Average rents and home prices for houses with water connections are much higher than any other category (6,755/month and 6.5 million KSh, respectively), although this could not be tested for statistically significant differences.

**Table C.3: Distribution of housing values and rents**

Characteristic	All	Location		Household has...			Household head is... <sup>c</sup>		Gender (Informal)	
		Informal areas	Formal areas	Tenure	Water connection	A business	Skilled	Un-skilled	Male-headed	Female-headed
Average home value (1,000 KSh) <sup>a</sup>	3,168	<u>1,197</u>	<u>3,626</u>	<u>3,144</u>	<u>6,545</u>	<u>1,679</u>	<u>3,681</u>	<u>2,874</u>	<u>1,238</u>	<u>891</u>
N	70	28	42	61	19	7	24	46	23	4
Distribution of home values: <i>Total</i>	100	100	100	100	100	100	100	100	100	100
1-8,999 KSh	0	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
9,000-299,999 KSh	12	<u>33</u>	<u>8</u>	<u>13</u>	<u>0</u>	<u>5</u>	<u>5</u>	<u>17</u>	<u>30</u>	<u>58</u>
300,000-999,999 KSh	14	<u>13</u>	<u>14</u>	<u>15</u>	<u>0</u>	<u>31</u>	<u>4</u>	<u>20</u>	<u>16</u>	<u>0</u>
1,000,000-2,499,999 KSh	44	<u>44</u>	<u>44</u>	<u>42</u>	<u>21</u>	<u>27</u>	<u>53</u>	<u>40</u>	<u>43</u>	<u>42</u>
2,500,000-250,000,000 KSh	29	<u>9</u>	<u>34</u>	<u>30</u>	<u>79</u>	<u>37</u>	<u>38</u>	<u>24</u>	<u>11</u>	<u>0</u>
N	70	28	42	61	19	7	24	46	23	4
Average monthly rent (tenants) <sup>b</sup>	2,808	<u>2,120</u>	<u>3,063</u>	-	<u>6,755</u>	<u>2,929</u>	<u>3,644</u>	<u>2,165</u>	<u>2,080</u>	<u>2,290</u>
N	918	462	456		143	79	382	536	363	91

Characteristic	All	Location		Household has...			Household head is... <sup>c</sup>		Gender (Informal)	
		Informal areas	Formal areas	Tenure	Water connection	A business	Skilled	Un-skilled	Male-headed	Female-headed
Distribution of monthly rents: <i>Total</i>	100	100	100		100	100	100	100	100	100
1-899 KSh	10	<u>19</u>	<u>6</u>	-	<u>0</u>	<u>7</u>	<u>4</u>	<u>14</u>	<u>19</u>	<u>20</u>
900-1,499 KSh	16	<u>26</u>	<u>13</u>	-	<u>1</u>	<u>13</u>	<u>9</u>	<u>21</u>	<u>25</u>	<u>28</u>
1,500-1,999 KSh	22	<u>22</u>	<u>21</u>	-	<u>1</u>	<u>18</u>	<u>17</u>	<u>25</u>	<u>24</u>	<u>12</u>
2,000-3,499 KSh	34	<u>22</u>	<u>39</u>	-	<u>27</u>	<u>39</u>	<u>39</u>	<u>30</u>	<u>20</u>	<u>26</u>
3,500-150,000 KSh	19	<u>12</u>	<u>21</u>	-	<u>70</u>	<u>23</u>	<u>30</u>	<u>10</u>	<u>11</u>	<u>14</u>
N	918	462	456		143	79	382	536	363	91

**Notes:**

- a. Self-reported, current, monthly, fair-market price (response to the question, "If you were to sell your house, how much do you think you could sell it for?").
- b. Excludes imputed owner-occupied rents.
- c. Includes those self-declared as "skilled" as well as "professional".

### C.4 Neighborhood social capital and civic participation

Respondents that own their homes are more likely than renters to participate in their community. Twenty-two percent of owners attended local councils (compared to only 7% of renters) and 37% attended neighborhood forums (compared to 10% of renters); both proportions are significantly higher than the corresponding proportion of renters. Owners are also significantly more likely to have voted in all types of elections, and are more likely to have a community leader. Interestingly, households with poor infrastructure are significantly more likely than those with good infrastructure to have a community leader. Very few respondents (2%) said that they had participated in a public demonstration or protest.

The survey asked respondents whether people in their neighborhood would cooperate if asked by an official to conserve water or electricity because of an emergency, and whether people in their neighborhood look out for each other. On both questions, the results are positive. When asked if people in their community would cooperate if asked by an official, the results average 3.4 on a four-point scale (where 4="very likely" and 1="very unlikely" to cooperate). When respondents were asked if they agreed that people look out and trust each other in their neighborhood, answers average 3.7 on a five-point scale (where 1="strongly disagree" and 5="strongly agree"). Owners are significantly more likely than renters to reply positively to both questions, and those in formal settlements are more likely to cooperate with officials. Fifty-five percent of respondents say they feel safe in their own neighborhood. The only statistically significant difference was by residents' access to infrastructure. In the upper half of infrastructure access, 64% of respondents felt safe in their own neighborhood compared to 50% of respondents in the lower half.

**Table C.4a: Neighborhood social capital and civic participation**

Characteristic	All	Location		Access to infrastructure <sup>a</sup>		Gender (Informal)		Tenure <sup>b</sup>	
		Informal areas	Formal areas	Lower half	Upper half	Male-headed	Female-headed	Own	Rent
<b>Civic participation</b>									
Percent of households... contacting local council	9	11	8	9	8	12	9	<b>22</b>	<b>7</b>
N	1,093	543	550	776	317	423	110	141	952
attending a neighborhood forum	14	15	13	15	11	15	13	<b>37</b>	<b>10</b>
N	1,093	543	550	776	317	423	110	141	952
<b>Social activism</b>									
Percent of households voting in local election <sup>(c)</sup>	24	26	23	22	28	27	23	<b>37</b>	<b>22</b>
N	1,093	543	550	776	317	423	110	141	952
2007 general election <sup>c</sup>	49	48	49	47	52	49	43	<b>68</b>	<b>46</b>
N	1,093	543	550	776	317	423	110	141	952
2010 referendum <sup>c</sup>	48	48	48	46	53	50	44	<b>68</b>	<b>45</b>
N	1,093	543	550	776	317	423	110	141	952
Percent of households with informal community or neighborhood leader	28	29	28	<b>35</b>	<b>14</b>	31	25	<b>37</b>	<b>27</b>
N	1,083	537	546	770	313	419	108	141	942
Percent of households that took part in a public demonstration or protest	2	1	2	1	3	1	1	2	1
N	1,093	543	550	776	317	423	110	141	952

Notes:

- Defined by dividing the population in half based on a score assigned using responses from thirteen infrastructure-related questions (see Section 3 of Introduction).
- Alternatively, this could be the length of time living in the neighborhood: less/more than (say) 2 years.
- Out of all households and not just those registered to vote.

**Table C.4b: Neighborhood social capital and civic participation**

Characteristic	All	Location		Access to infrastructure <sup>a</sup>		Gender (Informal)		Tenure <sup>b</sup>	
		Informal areas	Formal areas	Lower half	Upper half	Male-headed	Female-headed	Own	Rent
<b>Social capital</b>									
Average household response to:									
People in my neighborhood cooperate if asked by an official <sup>c</sup>	3.4	3.3	3.4	3.3	3.5	3.3	3.2	3.5	3.3
N	1,090	540	550	774	316	420	110	140	950
People in my neighborhood look out for/trust each other <sup>d</sup>	3.7	3.6	3.8	3.6	3.8	3.6	3.6	4.1	3.7
N	1,092	542	550	775	317	423	109	141	951
Proportion of households feeling safe from crime in own neighborhood	55	52	56	50	64	52	51	62	54
N	1,093	543	550	776	317	423	110	141	952

**Notes:**

- a. Defined by assigning scores using responses from thirteen infrastructure-related questions.
- b. Alternatively, this could be the length of time living in the neighborhood: less/more than (say) 2 years.
- c. Four-point scale where 1="Very unlikely" to 5="Very likely".
- d. Five-point scale where 1="Strongly disagree" to 5="Strongly agree".

**D.1a Water Access**

**T**wenty percent of households have a private piped water connection in their dwelling, a proportion which is significantly higher in formal areas (23%) than in informal areas (10%) and in non-poor households (27%) than poor households (14%). An additional 18% have piped water in their compound. This also varies significantly by area type (21% in formal areas, 9% in informal areas) and household poverty (23% of non-poor households, 14% of poor households). Finally, 73% of households are close (within 50 meters) to a source of piped water.

On average, it takes respondents nearly 7 hours per month to obtain water, including travel to and from the water source, waiting time, and filling time. Water costs an average of 607 KSh a month. Although there was not enough data at the census tract level to test for statistically significant differences between categories of households for the cost of water in time or money, we note that there are numerical differences. Households in informal areas spend more time but less money obtaining water than those in formal areas, male-headed households spend less time but more money obtaining water than their female-headed counterparts, and poor households spend more time and money than wealthier households.

Despite the fact that 10% of households have piped water in their dwellings, only 14% of respondents report that piped water is their most important water source. This percent is significantly higher in formal areas than informal areas (16% vs. 7%) and in non-poor households than poor households (27% vs. 14%). The most often-cited source as most important is water vendors (70% of all households), and a higher percentage of poor households than non-poor households used water vendors (74% vs. 64%). Non-poor households are more likely than poor households to use bottled water (4% vs. 0%) and more likely to use natural sources. Wells and boreholes are used more in informal areas than formal areas (12% vs. 5%).

Of the households that didn't have access to piped water, the main reason given (66%) was because they rented rather than owned their home and their landlord would not pay for a connection; the second most common reason (19%) was inability to afford the initial connection (although relatively few were unable to afford a water bill). Only 1% of respondents reported that the water provider had a waiting list, 8% said they had other sources available, and 5% said they did not have a water connection available to them.

**Table D.1a: Water access**

Characteristic	All	Security of Ownership <sup>(a)</sup>			Location		Household poverty		Gender (Informal)	
		Secure	Insecure	Rent	Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Percent of households with private piped water connection inside dwelling	20	30	2	19	<b>10</b>	<b>23</b>	<b>14</b>	<b>27</b>	10	11
N	1,093	89	29	975	543	550	638	451	423	110
Percent of households with piped water connection in compound	18	19	2	18	<b>9</b>	<b>21</b>	<b>14</b>	<b>23</b>	9	10
N	1,093	89	29	975	543	550	638	451	423	110
Percent of households close to piped water access <sup>b</sup>	73	<u>61</u>	<u>49</u>	<u>75</u>	<u>67</u>	<u>76</u>	<u>69</u>	<u>81</u>	<u>64</u>	<u>78</u>
N	866	62	28	776	477	389	545	318	372	96
Monthly cost of water in Time (minutes) <sup>c</sup>	410	<u>519</u>	<u>706</u>	<u>393</u>	<u>427</u>	<u>403</u>	<u>435</u>	<u>369</u>	<u>422</u>	<u>444</u>
N	902	69	28	805	491	411	561	338	386	97
Money (KSh)	607	<u>959</u>	<u>656</u>	<u>573</u>	<u>581</u>	<u>616</u>	<u>582</u>	<u>643</u>	<u>614</u>	<u>467</u>
N	1,013	83	21	909	503	510	595	415	392	101
Most important water source: <i>Total</i>	100	100	100	100	100	100	100	100	100	100
Piped	14	20	2	14	<b>7</b>	<b>16</b>	<b>10</b>	<b>19</b>	6	8
Bottled	2	5	0	1	1	2	0	<b>4</b>	1	2
Shared tap connection	5	3	0	5	<b>1</b>	<b>6</b>	5	4	1	2
Vendor (kiosk, tanker, other)	70	56	40	72	76	68	<b>74</b>	<b>64</b>	76	76
Neighbor(s)	1	0	0	1	1	1	0	1	1	1
Well/borehole	7	12	29	6	<b>12</b>	<b>5</b>	8	6	13	8
Natural source outside household	1	4	19	0	2	1	<b>1</b>	<b>0</b>	<b>1</b>	<b>3</b>
N	1,092	89	29	974	542	550	637	451	423	109
No connection due to:	100	100	100	100	100	100	100	100	100	100
Other sources available	8	<u>11</u>	<u>2</u>	<u>8</u>	<u>8</u>	<u>8</u>	<u>9</u>	<u>5</u>	<u>8</u>	<u>6</u>
Renting <sup>d</sup>	66	<u>5</u>	<u>14</u>	<u>72</u>	<u>69</u>	<u>64</u>	<u>63</u>	<u>70</u>	<u>70</u>	<u>68</u>
Can't afford connection	19	<u>51</u>	<u>30</u>	<u>16</u>	<u>16</u>	<u>20</u>	<u>20</u>	<u>16</u>	<u>15</u>	<u>20</u>
Can't afford monthly bill	2	<u>5</u>	<u>27</u>	<u>1</u>	<u>3</u>	<u>1</u>	<u>3</u>	<u>1</u>	<u>3</u>	<u>4</u>
Provider has waiting list	1	<u>6</u>	<u>2</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>2</u>
No service available	5	<u>22</u>	<u>25</u>	<u>3</u>	<u>2</u>	<u>6</u>	<u>4</u>	<u>6</u>	<u>2</u>	<u>0</u>
Other	0	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>
N	862	62	28	772	477	385	542	317	372	96

**Notes:**

- Self-reported; "secure" includes owners who feel no one could force them to leave without an official legal process in which they would participate, "insecure" includes owners who feel they could be forced to leave without an official legal process, and "rent" includes renters, squatters, and people who own their structure but not land.
- Respondents were asked whether there were dwellings or businesses within 50 meters of their home that had a piped water connection in the dwelling or compound.
- Calculated as the sum of time spent travelling, waiting in line, and filling containers.
- House does not have a connection and landlord will not pay for one.

## D.1b Water Quality

Water quality is generally rated “good” or “fair,” although 31% of the households that obtain water from a natural source and 24% using a well/borehole rate their water quality as poor.

Almost all respondents reported that their water provider is a public utility (69%) or themselves (25%). About half (45%) of the households in Mombasa treat their drinking water in any way; this is significantly more common among poor households than it is among non-poor households. The most commonly used treatment method is boiling (27%).

**Table D.1b: Water quality**

Characteristic	All	Household poverty		Location		Water quality					Gender (Informal)	
		Poor	Non-poor	Informal areas	Formal areas	Good	Fair	Poor	Total	N	Male-headed	Female-headed
Water source: <sup>a</sup>	14	10	19	7	16	49	45	6	100	127	6	8
Piped												
Bottled	2	0	4	1	2	22	63	15	100	16	1	2
Shared tap connection	5	5	4	1	6	53	42	5	100	31	1	2
Other vendor	70	74	64	76	68	41	45	14	100	776	76	76
Neighbor(s)	1	0	1	1	1	80	20	0	100	8	1	1
Well/Borehole	7	8	6	12	5	29	47	24	100	98	13	8
Natural outside-household source	1	1	0	2	1	14	55	31	100	17	1	3
N	1,092	637	451	542	550	457	477	158			423	109
Water provider: Public	69	70	69	60	71	51	43	6	100	153	55	74
Private	0	0	0	1	0	0	100	0	100	1	0	6
Self	25	26	24	22	25	29	60	10	100	52	27	10
Community	6	4	7	16	4	13	68	19	100	20	19	10
N	226	93	132	65	161	102	102	22			50	14
Percent of households treating drinking water	45	38	55	39	47	35	47	18	100	474	40	38
N	1,093	638	451	543	550	458	477	158			423	110
Treatment method: <sup>b</sup>	27	27	27	24	27	37	45	19	100	125	22	31
Boiling												
Add bleach/chlorine	19	82	79	81	80	33	49	18	100	377	169	43
Other (sieve, filter, settle)	2	2	1	1	2	70	30	0	100	7	1	1
N	474	227	245	214	260	165	211	98			169	43

**Notes:**

a. Most important water source.

b. Since multiple responses were permitted, the sum can exceed 100%. Likewise, “Other” is not shown, since it was negligible, so the sum may also be less than 100%.

## D.2a Electricity and waste-disposal services

Seventy-four percent of respondents reported access to electricity, a figure that differs significantly by poverty (85% of non-poor vs. 66% poor) and settlement type (82% in formal vs. 52% in informal). Reasons for not having a connection are similar to those for water – the primary reason reported was that households did not own their home and didn't have a choice (66%), followed by inability to pay for the initial connection (24%). Only 19% of respondents reported functional street lighting in their area.

The average monthly bill for those with electricity is 662 KSh. Ninety-nine percent of households with electricity pay for it. Electricity payments are primarily made to the public utility (81%), although many respondents pay their landlord instead (18%). Even when electricity is available, it is not particularly reliable; 39% of respondents experience outages on a weekly basis or more.

Nearly half of all households (46%) reported getting rid of their refuse by dumping it in their neighborhood or compound; this is significantly more common in informal areas than formal areas. Forty-two percent of households use a city collection system, and most of these households (92%) pay for collection. Using the collection system is more common in formal settlements and non-poor households than in informal settlements and poor households. Fourteen percent of poor households burn their trash, whereas only 9% of non-poor households do this.

**Table D.2a: Access to electricity and waste-disposal**

Characteristic	All	Location		Household poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
<b>Electricity</b>							
Proportion of households with access to electricity	74	52	82	66	85	52	51
N	1,093	543	550	638	451	423	110
Reason for no connection: <i>Total</i>	100	100	100	100	100	100	100
Renters	66	66	67	62	81	66	67
Firm has waiting list	2	4	1	2	4	4	4
Cannot afford connection	24	25	23	29	9	25	25
Cannot afford monthly bill	7	6	8	7	7	6	4
Other	1	0	1	1	0	0	0
N	341	244	97	252	89	189	52
Percent of households with mostly functioning street lighting	19	20	18	17	21	19	21
N	1,093	543	550	638	451	423	110
Average monthly bill, KSh	662	660	662	530	811	691	554
N	1,093	543	550	638	451	423	110
Percent of households not paying for electricity	1	1	1	1	1	1	2
N	649	247	402	331	315	195	45
Payment to: <i>Total</i>							
Utility	81	79	81	76	86	79	81

Characteristic	All	Location		Household poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Prepaid card	0	0	0	0	0	0	0
Landlord	18	21	17	22	13	21	19
Third party (from utility power line)	1	0	1	1	0	0	0
N	641	243	398	328	310	192	44
Percent of households with outages at least once weekly	39	44	37	35	43	45	36
N	751	298	453	385	362	234	58
<b>Refuse disposal</b>							
Main method:							
Dumping	46	59	42	49	42	59	55
Burying	1	1	1	0	1	1	1
Burning	12	16	10	14	9	16	17
Collection system <sup>a</sup>	42	25	47	37	48	25	27
N	1,093	543	550	638	451	423	110
Proportion of households paying for collection	92	98	91	90	94	98	97
N	413	147	266	202	208	118	28

Notes:

a. Run by city, community, or private firm.

## D.2b Access to sanitation services

Only 29% of households reported that they have a toilet in their home, and this significantly varies by location and poverty; whereas 33% of households in formal areas and 39% of non-poor households have a toilet at home, only 18% of those in informal settlements and 22% of poor households have one. Most households use a pit latrine (41%), a flush toilet (32%), or a public latrine (26%). Households in formal settlements are much more likely to use a flush toilet and less likely to use a public latrine.

More poor households than non-poor households use individual pit latrines, and fewer use flush toilets. The majority of households (80%) share a toilet with several other families. Most toilets (67%) drain into pits; about a quarter of households (24%) use toilets connected to a septic tank, and only 8% connect to a sewer (legally or illegally).

“Grey water” (waste water from washing, cleaning, etc.) is generally poured out into the road (47%) or dumped down the drain (50%). Households in formal settlements are more likely to dump their grey water down the drain than households in informal settlements, and less likely to pour it onto the road.

**Table D.2b: Access to sanitation**

Characteristic	All	Location		Household poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Percent of households with toilet in home	29	18	33	22	39	18	20
N	1,093	543	550	638	451	423	110
Type of toilet system: <i>Total</i>							
Pit latrine (individual)	41	46	40	48	32	45	46
VIP latrine	0	0	0	0	0	0	0
Flush toilet/WC	32	16	38	24	44	15	20
Public/shared latrine	26	37	22	28	23	39	33
Paid shared latrine	0	0	0	0	0	0	0
N	1,093	543	550	638	451	423	110
Percent of households sharing toilet:							
Doesn't share	20	12	22	14	28	12	14
Shares with 2-9 other households	64	70	62	70	57	69	72
Shares with 10+ other households	16	18	15	17	15	19	14
N	1,083	536	547	629	450	418	108
Type of disposal system for toilet:							
Total	100	100	100	100	100	100	100
Pit latrine	67	81	63	75	58	81	81
Sewer (legal)	5	3	6	3	8	3	6
Sewer (informal)	3	2	4	4	2	2	1
Septic tank/soak pit	24	14	28	18	32	14	12
N	1,024	510	514	587	433	394	107
Disposal of "grey water": <i>Total</i>							
Total	100	100	100	100	100	100	100
Dump into drain	50	38	54	48	53	40	33
Pour onto road	47	60	43	49	45	58	66
Pour into latrine	2	2	3	3	2	2	2
Other	0	0	0	0	0	0	0
N	1,089	540	549	634	451	420	110

### D.3 Access to transport

Most individuals (74%) work or study outside their neighborhood rather than inside of it. Individuals in non-poor households are more likely to work or study outside their neighborhood than those in poor households. Practically all respondents commute on foot (52%) or via a matatu (44%).<sup>15</sup> Students and poor households are significantly more likely to walk than workers and non-poor households. Workers are significantly more likely to use matatus than students. Non-poor households use their own vehicle and matatus more often than poor households.

Average one-way transport time is 22 minutes. Respondents take slightly shorter trips to school than to work. Of the respondents that had to pay to travel, the average one-way cost is 54 KSh.

Sixty-five percent of respondents said that their access to roads is generally good, and road access is better in formal areas. Thirteen percent of households reported limited road access during the rainy season.

**Table D.3: Access to transport**

Characteristic	All	Household activity <sup>a</sup>		Location		Household poverty		Gender (Informal)	
		Work	Study	Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Percent who work or study...									
inside the neighborhood	25			29	24	29	19	27	38
outside the neighborhood	74			70	75	70	80	72	62
inside <i>and</i> outside the neighborhood	1			0	1	1	1	0	0
N	1,338			659	679	781	552	525	127
Main mode of travel <sup>b</sup> Walk	52	44	78	56	51	58	43	54	62
Bicycle	1	1	0	1	0	0	1	1	0
Own vehicle	2	0	0	0	3	1	4	0	0
Matatu	44	52	19	41	45	39	51	42	35
Shared taxi	0	0	0	0	0	0	0	0	0
Bike taxi	1	2	1	1	1	1	1	2	0
Municipal bus	0	0	1	0	0	0	0	0	0
N	1,838	578	306	884	954	1,105	724	707	166
Transport time (minutes)	22	24	18	22	22	21	23	22	19
N	1,837	577	306	883	954	1106	722	706	165
One-way trip cost to work/school (KSh)	54	40	65	45	57	43	69	45	42
N	830	319	67	386	444	454	372	321	58
Households with road access as: Poor	35			50	30	32	40	50	50
Good	65			50	70	68	60	50	50
N	1093			543	550	638	451	423	110
Percent of households with limited road access during rainy season	13			13	13	12	13	13	14
N	1093			543	550	638	451	423	110

Notes:

a. Informal areas only.

b. To work or to school. May not add to 100% since "Other", which was negligible, is not reported in table.

<sup>15</sup> A "matatu" is a 14-seater minivan used throughout Kenya as a form of public transport.

## D.4 Access to communications

While land lines are practically nonexistent among households in Mombasa, mobile phone ownership is widespread. The average household owns 1.4 mobile phones. The number owned varies significantly by area type and the gender of the household head. A remarkably large number of those with mobile phones use mobile banking (79%), with significant differences by area type and poverty. On the other hand, relatively few respondents have a computer (4%), though the rate of computer ownership is significantly higher in formal areas and among non-poor households. Only 15% reported accessing the internet using any means, a figure which is significantly higher among non-poor households than poor households (24% vs. 9%).

**Table D.4: Access to communications**

Characteristic	All	Location		Household poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Percent of households with functioning land line	1	0	1	1	2	0	1
N	1,093	543	550	638	451	423	110
Average number of mobile phones owned by household	1.4	1.2	1.4	1.3	1.4	1.3	0.8
N	1,092	542	550	638	450	422	110
Percent of households using mobile banking	79	69	82	75	84	73	56
N	1,092	543	549	638	450	423	110
Percent of households with functioning computer	4	1	5	1	7	1	3
N	1,093	543	550	638	451	423	110
Percent of households using internet (any means)	15	12	17	9	24	11	16
N	1,093	543	550	638	451	423	110

## D.5 Access to infrastructure indicator

The access to infrastructure indicator combines six categories of infrastructure (divided into 13 subcategories) weighted by importance to the household and summed to create a household indicator from 0 to 9.5.16 Higher scores represent better access to infrastructure. This indicator provides an overall understanding of a household's infrastructure access. By averaging households' scores on the indicator, we can quickly compare infrastructure access in informal and formal areas, between poor and non-poor households, and between male- and female-headed households in informal areas.

Table D.5 presents household mean scores on the access-to-infrastructure indicator. The mean score across all households in Mombasa is 3.24. Households in formal areas score significantly higher than households in informal areas, and the difference in mean scores is quite large - greater than one. There is also a large, significant difference between poor and non-poor households (2.89 vs. 3.73).

<sup>16</sup> The 13 subcategories are: piped water (1 point); shared/indirect connection (0.5 points); direct electricity access (1); street lighting (0.5); garbage collection system (1); own toilet (1); shared toilet with less than 20 other people (0.5); legal sewer system for toilet (0.5); grey water not poured onto street (0.5); good road access at dwelling (0.5); road access not limited during rainy season (0.5); no flooding (1); no mudslides (1).

**Table D.5: Access to infrastructure indicator**

Characteristic	All	Location		Household poverty		Gender (Informal)	
		Informal areas	Formal areas	Poor	Non-poor	Male-headed	Female-headed
Mean score on access to infrastructure indicator	3.24	2.43	3.53	2.89	3.73	2.42	2.43
N	1093	543	550	638	451	423	110

## CONCLUSIONS

The following three figures are “Development Polygons”. These polygons are meant to complement the detailed tables presented in sections A through D by illustrating an “overall” sense of the state of the city. We present information for all areas, along with formal and informal areas, in each of the three figures: the Development Diamond, the Infrastructure Polygon, and the Living Conditions Diamond.<sup>17</sup> In all figures, the value labels included provide the value of the indicator for all areas. The statistics underlying these figures are also in the tables, above. Similar graphics also appear in the City-at-a-Glance Reports and the Overview Report produced under the NORC contract.

The axes for all figures represent percentages. Polygons with larger areas represent a “better” situation in regards to the associated indicator(s). Hence, a polygon with full coverage would indicate that the city is doing very well in terms of development, infrastructure, or living conditions.

The Development Diamond (Figure 1) maps four indicators of poverty—welfare, employment, education, and living conditions. In three quarters of the development diamond—welfare, employment, and education—formal and informal areas are similarly situated. However, households in formal areas far outpace the households in informal areas in terms of living conditions—in formal areas, a much larger percentage of households have permanent walls and access to both piped water and electricity (23% vs. 8% in informal areas and 19% overall).

The Infrastructure Polygon, shown in Figure 2, presents residents’ access to ten different types of infrastructure – piped water, electricity, private toilets, sewage, drainage, garbage collection, street lighting, mobile phones, public transport, and good roads. Piped water, electricity, and private toilets are much more prevalent in formal areas (30%, 82%, and 28%, respectively) than informal areas (13%, 52%, and 14%). Access to sewage and garbage collection is not very common overall, with small differences by area type. Less than 20%

Figure 1: Development diamond

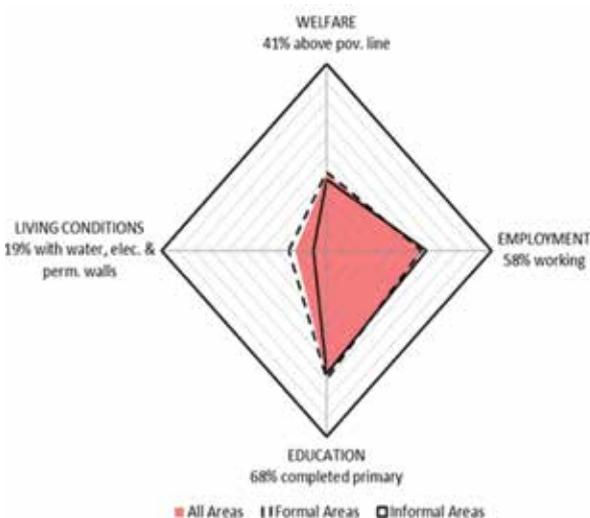
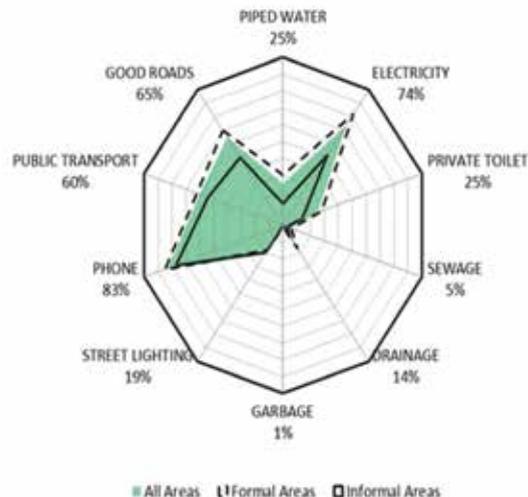


Figure 2: Infrastructure polygon

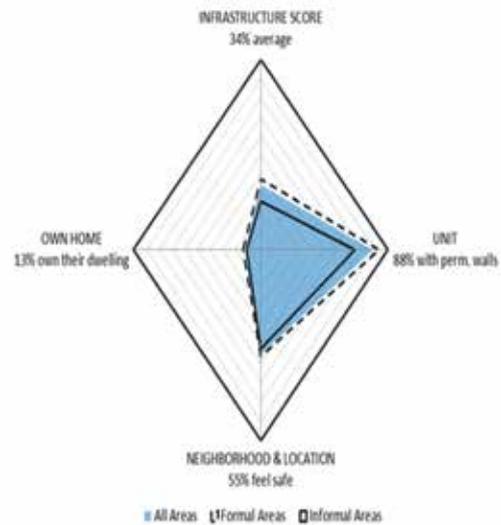


<sup>17</sup> The basic format for all three figures appear in the World Bank Policy Research Working Paper, “Poverty, Living Conditions, and Infrastructure Access” A Comparison of Slums in Dakar, Johannesburg, and Nairobi” by Sumila Gulyani, Debabrata Talukdar, and Darby Jack (2010). We strived to make our own figures as similar as possible, though some deviations, noted in the accompanying text, were necessary.

of all households have access to drainage and street lighting, though, for drainage, households in formal areas are better off than those in informal areas (17% vs. 8%). Access to phones, public transport, and good roads is at least 62% each in formal areas, at least 50% each in formal areas informal areas, and at least 60% each in all areas combined.

Figure 3 presents the Living Conditions Diamond. The four axes of this diamond are the infrastructure score (scaled to a percentage of the total possible points), unit conditions, neighborhood and location, and home ownership. All areas combined scored an average of 36% on the infrastructure score – 37% in formal areas and 26% in informal areas. Eighty-eight percent of all households have permanent walls – 93% in formal areas and 74% in informal areas. Fifty-five percent of all households feel safe in their neighborhood, a figure which is only 4% higher in formal areas (56%) than in informal areas (52%). Finally, 13% of households own their dwelling. This percentage is about the same in formal areas (14%) and informal areas (11%).

Figure 3: Living conditions diamond





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